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<110> Nam, Jae-Hwan
Bukh, Jens
Emerson, Suzanne
Purcell, Robert

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His Lys Arg Gly Glu Arg Asp Val Pro Thr Asn Leu Ala Ser Leu Pro
50 55 60

Lys Arg Gly Asp Cys Arg Ser Gly Asn Ser Arg Gly Pro Val Ser Gly
65 70 75 80

Ile Tyr Leu Lys Pro Gly Pro Leu Phe Tyr Gln Asp Tyr Lys Gly Pro
85 90 95

Val Tyr His Arg Ala Pro Leu Glu Leu Phe Glu Glu Gly Ser Met Cys
100 105 110

Glu Thr Thr Lys Arg Ile Gly Arg Val Thr Gly Ser Asp Gly Lys Leu
115 120 125

Tyr His Ile Tyr Val Cys Ile Asp Gly Cys Ile Ile Ile Lys Ser Ala
130 135 140

Thr Arg Ser Tyr Gln Arg Val Phe Arg Trp Val His Asn Arg Leu Asp
145 150 155 160

Cys Pro Leu Trp Val Thr Ser Cys Ser Thr Asn Pro Lys Pro Gln Arg
165 170 175

Lys Thr Lys Arg Asn Thr Asn Arg Arg Pro Gln Asp Val Lys Phe Pro
180 185 190

Gly Gly Gly Gln Ile Val Gly Gly Val Tyr Leu Leu Pro Arg Arg Gly
195 200 205

Pro Arg Leu Gly Val Arg Ala Thr Arg Lys Thr Ser Glu Arg Ser Gln
210 215 220

Pro Arg Gly Arg Arg Gln Pro Ile Pro Lys Ala Arg Arg Pro Glu Gly
225 230 235 240

Arg Thr Trp Ala Gln Pro Gly Tyr Pro Trp Pro Leu Tyr Gly Asn Glu
245 250 255

Gly Cys Gly Trp Ala Gly Trp Leu Leu Ser Pro Arg Gly Ser Arg Pro
260 265 270

Ser Trp Gly Pro Thr Asp Pro Arg Arg Arg Ser Arg Asn Leu Gly Lys
 275 280 285

Val Ile Asp Thr Leu Thr Cys Gly Phe Ala Asp Leu Met Gly Tyr Ile
 290 295 300

Pro Leu Val Gly Ala Pro Leu Gly Gly Ala Ala Arg Ala Leu Ala His
 305 310 315 320

Gly Val Arg Val Leu Glu Asp Gly Val Asn Tyr Ala Thr Gly Asn Leu
 325 330 335

Pro Gly Cys Ser Phe Ser Ile Phe Leu Leu Ala Leu Leu Ser Cys Leu
 340 345 350

Thr Val Pro Ala Ser Ala Tyr Gln Val Arg Asn Ser Ser Gly Leu Tyr
 355 360 365

His Val Thr Asn Asp Cys Pro Asn Ser Ser Ile Val Tyr Glu Ala Ala
 370 375 380

Asp Ala Ile Leu His Thr Pro Gly Cys Val Pro Cys Val Arg Glu Gly
 385 390 395 400

Asn Ala Ser Arg Cys Trp Val Ala Val Thr Pro Thr Val Ala Thr Arg
 405 410 415

Asp Gly Lys Leu Pro Thr Thr Gln Leu Arg Arg His Ile Asp Leu Leu
 420 425 430

Val Gly Ser Ala Thr Leu Cys Ser Ala Leu Tyr Val Gly Asp Leu Cys
 435 440 445

Gly Ser Val Phe Leu Val Gly Gln Leu Phe Thr Phe Ser Pro Arg Arg
 450 455 460

His Trp Thr Thr Gln Asp Cys Asn Cys Ser Ile Tyr Pro Gly His Ile
 465 470 475 480

Thr Gly His Arg Met Ala Trp Asp Met Met Met Asn Trp Ser Pro Thr
 485 490 495

Ala Ala Leu Val Val Ala Gln Leu Leu Arg Ile Pro Gln Ala Ile Met
 500 505 510

Asp Met Ile Ala Gly Ala His Trp Gly Val Leu Ala Gly Ile Ala Tyr
 515 520 525

Phe Ser Met Val Gly Asn Trp Ala Lys Val Leu Val Val Leu Leu Leu
530 535 540

Phe Ala Gly Val Asp Ala Glu Thr His Val Thr Gly Gly Asn Ala Gly
545 550 555 560

Arg Thr Thr Ala Gly Leu Val Gly Leu Leu Thr Pro Gly Ala Lys Gln
565 570 575

Asn Ile Gln Leu Ile Asn Thr Asn Gly Ser Trp His Ile Asn Ser Thr
580 585 590

Ala Leu Asn Cys Asn Glu Ser Leu Asn Thr Gly Trp Leu Ala Gly Leu
595 600 605

Phe Tyr Gln His Lys Phe Asn Ser Ser Gly Cys Pro Glu Arg Leu Ala
610 615 620

Ser Cys Arg Arg Leu Thr Asp Phe Ala Gln Gly Trp Gly Pro Ile Ser
625 630 635 640

Tyr Ala Asn Gly Ser Gly Leu Asp Glu Arg Pro Tyr Cys Trp His Tyr
645 650 655

Pro Pro Arg Pro Cys Gly Ile Val Pro Ala Lys Ser Val Cys Gly Pro
660 665 670

Val Tyr Cys Phe Thr Pro Ser Pro Val Val Val Gly Thr Thr Asp Arg
675 680 685

Ser Gly Ala Pro Thr Tyr Ser Trp Gly Ala Asn Asp Thr Asp Val Phe
690 695 700

Val Leu Asn Asn Thr Arg Pro Pro Leu Gly Asn Trp Phe Gly Cys Thr
705 710 715 720

Trp Met Asn Ser Thr Gly Phe Thr Lys Val Cys Gly Ala Pro Pro Cys
725 730 735

Val Ile Gly Gly Val Gly Asn Asn Thr Leu Leu Cys Pro Thr Asp Cys
740 745 750

Phe Arg Lys His Pro Glu Ala Thr Tyr Ser Arg Cys Gly Ser Gly Pro
755 760 765

Trp Ile Thr Pro Arg Cys Met Val Asp Tyr Pro Tyr Arg Leu Trp His
770 775 780

Tyr Pro Cys Thr Ile Asn Tyr Thr Ile Phe Lys Val Arg Met Tyr Val
 785 790 795 800

Gly Gly Val Glu His Arg Leu Glu Ala Ala Cys Asn Trp Thr Arg Gly
 805 810 815

Glu Arg Cys Asp Leu Glu Asp Arg Asp Arg Ser Glu Leu Ser Pro Leu
 820 825 830

Leu Leu Ser Thr Thr Gln Trp Gln Val Leu Pro Cys Ser Phe Thr Thr
 835 840 845

Leu Pro Ala Leu Ser Thr Gly Leu Ile His Leu His Gln Asn Ile Val
 850 855 860

Asp Val Gln Tyr Leu Tyr Gly Val Gly Ser Ser Ile Ala Ser Trp Ala
 865 870 875 880

Ile Lys Trp Glu Tyr Val Val Leu Leu Phe Leu Leu Leu Ala Asp Ala
 885 890 895

Arg Val Cys Ser Cys Leu Trp Met Met Leu Leu Ile Ser Gln Ala Glu
 900 905 910

Ala Ile Gln Tyr Gly Ser Gly Glu Val Val Met Met Gly Asn Leu Leu
 915 920 925

Thr His Asn Asn Ile Glu Val Val Thr Tyr Phe Leu Leu Leu Tyr Leu
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Leu Leu Arg Glu Glu Ser Val Lys Lys Trp Val Leu Leu Leu Tyr His
 945 950 955 960

Ile Leu Val Val His Pro Ile Lys Ser Val Ile Val Ile Leu Leu Met
 965 970 975

Ile Gly Asp Val Val Lys Ala Asp Ser Gly Gly Gln Glu Tyr Leu Gly
 980 985 990

Lys Ile Asp Leu Cys Phe Thr Thr Val Val Leu Ile Val Ile Gly Leu
 995 1000 1005

Ile Ile Ala Arg Arg Asp Pro Thr Ile Val Pro Leu Val Thr Ile Met
 1010 1015 1020

Ala Ala Leu Arg Val Thr Glu Leu Thr His Gln Pro Gly Val Asp Ile
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Ala Val Ala Val Met Thr Ile Thr Leu Leu Met Val Ser Tyr Val Thr			
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Asp Tyr Phe Arg Tyr Lys Lys Trp Leu Gln Cys Ile Leu Ser Leu Val			
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Ser Gly Val Phe Leu Ile Arg Ser Leu Ile Tyr Leu Gly Arg Ile Glu			
1075	1080	1085	
Met Pro Glu Val Thr Ile Pro Asn Trp Arg Pro Leu Thr Leu Ile Leu			
1090	1095	1100	
Leu Tyr Leu Ile Ser Thr Thr Ile Val Thr Arg Trp Lys Val Asp Val			
1105	1110	1115	1120
Ala Gly Leu Leu Leu Gln Cys Val Pro Ile Leu Leu Leu Val Thr Thr			
1125	1130	1135	
Leu Trp Ala Asp Phe Leu Thr Leu Ile Leu Ile Leu Pro Thr Tyr Glu			
1140	1145	1150	
Leu Val Lys Leu Tyr Tyr Leu Lys Thr Val Arg Thr Asp Ile Glu Arg			
1155	1160	1165	
Ser Trp Leu Gly Gly Ile Asp Tyr Thr Arg Val Asp Ser Ile Tyr Asp			
1170	1175	1180	
Val Asp Glu Ser Gly Glu Gly Val Tyr Leu Phe Pro Ser Arg Gln Lys			
1185	1190	1195	1200
Ala Gln Gly Asn Phe Ser Ile Leu Leu Pro Leu Ile Lys Ala Thr Leu			
1205	1210	1215	
Ile Ser Cys Val Ser Ser Lys Trp Gln Leu Ile Tyr Met Ser Tyr Leu			
1220	1225	1230	
Thr Leu Asp Phe Met Tyr Tyr Met His Arg Lys Val Ile Glu Glu Ile			
1235	1240	1245	
Ser Gly Gly Thr Asn Ile Ile Ser Arg Leu Val Ala Ala Leu Ile Glu			
1250	1255	1260	
Leu Asn Trp Ser Met Glu Glu Glu Glu Ser Lys Gly Leu Lys Lys Phe			
1265	1270	1275	1280
Tyr Leu Leu Ser Gly Arg Leu Arg Asn Leu Ile Ile Lys His Lys Val			
1285	1290	1295	

Arg Asn Glu Thr Val Ala Ser Trp Tyr Gly Glu Glu Glu Val Tyr Gly
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Met Pro Lys Ile Met Thr Ile Ile Lys Ala Ser Thr Leu Ser Lys Ser
 1315 1320 1325

Arg His Cys Ile Ile Cys Thr Val Cys Glu Gly Arg Glu Trp Lys Gly
 1330 1335 1340

Gly Thr Cys Pro Lys Cys Gly Arg His Gly Lys Pro Ile Thr Cys Gly
 1345 1350 1355 1360

Met Ser Leu Ala Asp Phe Glu Glu Arg His Tyr Lys Arg Ile Phe Ile
 1365 1370 1375

Arg Glu Gly Asn Phe Glu Gly Met Cys Ser Arg Cys Gln Gly Lys His
 1380 1385 1390

Arg Arg Phe Glu Met Asp Arg Glu Pro Lys Ser Ala Arg Tyr Cys Ala
 1395 1400 1405

Glu Cys Asn Arg Leu His Pro Ala Glu Glu Gly Asp Phe Trp Ala Glu
 1410 1415 1420

Ser Ser Met Leu Gly Leu Lys Ile Thr Tyr Phe Ala Leu Met Asp Gly
 1425 1430 1435 1440

Lys Val Tyr Asp Ile Thr Glu Trp Ala Gly Cys Gln Arg Val Gly Ile
 1445 1450 1455

Ser Pro Asp Thr His Arg Val Pro Cys His Ile Ser Phe Gly Ser Arg
 1460 1465 1470

Met Pro Phe Arg Gln Glu Tyr Asn Gly Phe Val Gln Tyr Thr Ala Arg
 1475 1480 1485

Gly Gln Leu Phe Leu Arg Asn Leu Pro Val Leu Ala Thr Lys Val Lys
 1490 1495 1500

Met Leu Met Val Gly Asn Leu Gly Glu Glu Ile Gly Asn Leu Glu His
 1505 1510 1515 1520

Leu Gly Trp Ile Leu Arg Gly Pro Ala Val Cys Lys Lys Ile Thr Glu
 1525 1530 1535

His Glu Lys Cys His Ile Asn Ile Leu Asp Lys Leu Thr Ala Phe Phe
 1540 1545 1550

Gly Ile Met Pro Arg Gly Thr Thr Pro Arg Ala Pro Val Arg Phe Pro		
1555	1560	1565
Thr Ser Leu Leu Lys Val Arg Arg Gly Leu Glu Thr Gly Trp Ala Tyr		
1570	1575	1580
Thr His Gln Gly Gly Ile Ser Ser Val Asp His Val Thr Ala Gly Lys		
1585	1590	1595 1600
Asp Leu Leu Val Cys Asp Ser Met Gly Arg Thr Arg Val Val Cys Gln		
1605	1610	1615
Ser Asn Asn Arg Leu Thr Asp Glu Thr Glu Tyr Gly Val Lys Thr Asp		
1620	1625	1630
Ser Gly Cys Pro Asp Gly Ala Arg Cys Tyr Val Leu Asn Pro Glu Ala		
1635	1640	1645
Val Asn Ile Ser Gly Ser Lys Gly Ala Val Val His Leu Gln Lys Thr		
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Gly Gly Glu Phe Thr Cys Val Thr Ala Ser Gly Thr Pro Ala Phe Phe		
1665	1670	1675 1680
Asp Leu Lys Asn Leu Lys Gly Trp Ser Gly Leu Pro Ile Phe Glu Ala		
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Ser Ser Gly Arg Val Val Gly Arg Val Lys Val Gly Lys Asn Glu Glu		
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Ser Lys Pro Thr Lys Ile Met Ser Gly Ile Gln Thr Val Ser Lys Asn		
1715	1720	1725
Thr Ala Asp Leu Thr Glu Met Val Lys Lys Ile Thr Ser Met Asn Arg		
1730	1735	1740
Gly Asp Phe Lys Gln Ile Thr Leu Ala Thr Gly Ala Gly Lys Thr Thr		
1745	1750	1755 1760
Glu Leu Pro Lys Ala Val Ile Glu Glu Ile Gly Arg His Lys Arg Val		
1765	1770	1775
Leu Val Leu Ile Pro Leu Arg Ala Ala Ala Glu Ser Val Tyr Gln Tyr		
1780	1785	1790
Met Arg Leu Lys His Pro Ser Ile Ser Phe Asn Leu Arg Ile Gly Asp		
1795	1800	1805

Met Lys Glu Gly Asp Met Ala Thr Gly Ile Thr Tyr Ala Ser Tyr Gly
 1810 1815 1820

Tyr Phe Cys Gln Met Pro Gln Pro Lys Leu Arg Ala Ala Met Val Glu
 1825 1830 1835 1840

Tyr Ser Tyr Ile Phe Leu Asp Glu Tyr His Cys Ala Thr Pro Glu Gln
 1845 1850 1855

Leu Ala Ile Ile Gly Lys Ile His Arg Phe Ser Glu Ser Ile Arg Val
 1860 1865 1870

Val Ala Met Thr Ala Thr Pro Ala Gly Ser Val Thr Thr Thr Gly Gln
 1875 1880 1885

Lys His Pro Ile Glu Glu Phe Ile Ala Pro Glu Val Met Lys Gly Glu
 1890 1895 1900

Asp Leu Gly Ser Gln Phe Leu Asp Ile Ala Gly Leu Lys Ile Pro Val
 1905 1910 1915 1920

Asp Glu Met Lys Gly Asn Met Leu Val Phe Val Pro Thr Arg Asn Met
 1925 1930 1935

Ala Val Glu Val Ala Lys Lys Leu Lys Ala Lys Gly Tyr Asn Ser Gly
 1940 1945 1950

Tyr Tyr Tyr Ser Gly Glu Asp Pro Ala Asn Leu Arg Val Val Thr Ser
 1955 1960 1965

Gln Ser Pro Tyr Val Ile Val Ala Thr Asn Ala Ile Glu Ser Gly Val
 1970 1975 1980

Thr Leu Pro Asp Leu Asp Thr Val Ile Asp Thr Gly Leu Lys Cys Glu
 1985 1990 1995 2000

Lys Arg Val Arg Val Ser Ser Lys Ile Pro Phe Ile Val Thr Gly Leu
 2005 2010 2015

Lys Arg Met Ala Val Thr Val Gly Glu Gln Ala Gln Arg Arg Gly Arg
 2020 2025 2030

Val Gly Arg Val Lys Pro Gly Arg Tyr Tyr Arg Ser Gln Glu Thr Ala
 2035 2040 2045

Thr Gly Ser Lys Asp Tyr His Tyr Asp Leu Leu Gln Ala Gln Arg Tyr
 2050 2055 2060

Gly Ile Glu Asp Gly Ile Asn Val Thr Lys Ser Phe Arg Glu Met Asn			
2065	2070	2075	2080
Tyr Asp Trp Ser Leu Tyr Glu Glu Asp Ser Leu Leu Ile Thr Gln Leu			
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Glu Ile Leu Asn Asn Leu Leu Ile Ser Glu Asp Leu Pro Ala Ala Val			
2100	2105	2110	
Lys Asn Ile Met Ala Arg Thr Asp His Pro Glu Pro Ile Gln Leu Ala			
2115	2120	2125	
Tyr Asn Ser Tyr Glu Val Gln Val Pro Val Leu Phe Pro Lys Ile Arg			
2130	2135	2140	
Asn Gly Glu Val Thr Asp Thr Tyr Glu Asn Tyr Ser Phe Leu Asn Ala			
2145	2150	2155	2160
Arg Lys Leu Gly Glu Asp Val Pro Val Tyr Ile Tyr Ala Thr Glu Asp			
2165	2170	2175	
Glu Asp Leu Ala Val Asp Leu Leu Gly Leu Asp Trp Pro Asp Pro Gly			
2180	2185	2190	
Asn Gln Gln Val Val Glu Thr Gly Lys Ala Leu Lys Gln Val Thr Gly			
2195	2200	2205	
Leu Ser Ser Ala Glu Asn Ala Leu Leu Val Ala Leu Phe Gly Tyr Val			
2210	2215	2220	
Gly Tyr Gln Ala Leu Ser Lys Arg His Val Pro Met Ile Thr Asp Ile			
2225	2230	2235	2240
Tyr Thr Ile Glu Asp Gln Arg Leu Glu Asp Thr Thr His Leu Gln Tyr			
2245	2250	2255	
Ala Pro Asn Ala Ile Lys Thr Asp Gly Thr Glu Thr Glu Leu Lys Glu			
2260	2265	2270	
Leu Ala Ser Gly Asp Val Glu Lys Ile Met Gly Ala Ile Ser Asp Tyr			
2275	2280	2285	
Ala Ala Gly Gly Leu Glu Phe Val Lys Ser Gln Ala Glu Lys Ile Lys			
2290	2295	2300	
Thr Ala Pro Leu Phe Lys Glu Asn Ala Glu Ala Ala Lys Gly Tyr Val			
2305	2310	2315	2320

Gln Lys Phe Ile Asp Ser Leu Ile Glu Asn Lys Glu Glu Ile Ile Arg			
2325	2330	2335	
Tyr Gly Leu Trp Gly Thr His Thr Ala Leu Tyr Lys Ser Ile Ala Ala			
2340	2345	2350	
Arg Leu Gly His Glu Thr Ala Phe Ala Thr Leu Val Leu Lys Trp Leu			
2355	2360	2365	
Ala Phe Gly Gly Glu Ser Val Ser Asp His Val Lys Gln Ala Ala Val			
2370	2375	2380	
Asp Leu Val Val Tyr Tyr Val Met Asn Lys Pro Ser Phe Pro Gly Asp			
2385	2390	2395	2400
Ser Glu Thr Gln Gln Glu Gly Arg Arg Phe Val Ala Ser Leu Phe Ile			
2405	2410	2415	
Ser Ala Leu Ala Thr Tyr Thr Tyr Lys Thr Trp Asn Tyr His Asn Leu			
2420	2425	2430	
Ser Lys Val Val Glu Pro Ala Leu Ala Tyr Leu Pro Tyr Ala Thr Ser			
2435	2440	2445	
Ala Leu Lys Met Phe Thr Pro Thr Arg Leu Glu Ser Val Val Ile Leu			
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Ser Thr Thr Ile Tyr Lys Thr Tyr Leu Ser Ile Arg Lys Gly Lys Ser			
2465	2470	2475	2480
Asp Gly Leu Leu Gly Thr Gly Ile Ser Ala Ala Met Glu Ile Leu Ser			
2485	2490	2495	
Gln Asn Pro Val Ser Val Gly Ile Ser Val Met Leu Gly Val Gly Ala			
2500	2505	2510	
Ile Ala Ala His Asn Ala Ile Glu Ser Ser Glu Gln Lys Arg Thr Leu			
2515	2520	2525	
Leu Met Lys Val Phe Val Lys Asn Phe Leu Asp Gln Ala Ala Thr Asp			
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Glu Leu Val Lys Glu Asn Pro Glu Lys Ile Ile Met Ala Leu Phe Glu			
2545	2550	2555	2560
Ala Val Gln Thr Ile Gly Asn Pro Leu Arg Leu Ile Tyr His Leu Tyr			
2565	2570	2575	

Gly Val Tyr Tyr Lys Gly Trp Glu Ala Lys Glu Leu Ser Glu Arg Thr
 2580 2585 2590

Ala Gly Arg Asn Leu Phe Thr Leu Ile Met Phe Glu Ala Phe Glu Leu
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Leu Gly Met Asp Ser Gln Gly Lys Ile Arg Asn Leu Ser Gly Asn Tyr
 2610 2615 2620

Ile Leu Asp Leu Ile Tyr Gly Leu His Lys Gln Ile Asn Arg Gly Leu
 2625 2630 2635 2640

Lys Lys Met Val Leu Gly Trp Ala Pro Ala Pro Phe Ser Cys Asp Trp
 2645 2650 2655

Thr Pro Ser Asp Glu Arg Ile Arg Leu Pro Thr Asp Asn Tyr Leu Arg
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Val Glu Thr Arg Cys Pro Cys Gly Tyr Glu Met Lys Ala Phe Lys Asn
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Val Gly Gly Lys Leu Thr Lys Val Glu Glu Ser Gly Pro Phe Leu Cys
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Arg Asn Arg Pro Gly Arg Gly Pro Val Asn Tyr Arg Val Thr Lys Tyr
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Tyr Asp Asp Asn Leu Arg Glu Ile Lys Pro Val Ala Lys Leu Glu Gly
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Gln Val Glu His Tyr Tyr Lys Gly Val Thr Ala Lys Ile Asp Tyr Ser
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Lys Gly Lys Met Leu Leu Ala Thr Asp Lys Trp Glu Val Glu His Gly
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Val Ile Thr Arg Leu Ala Lys Arg Tyr Thr Gly Val Gly Phe Asn Gly
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Ala Tyr Leu Gly Asp Glu Pro Asn His Arg Ala Leu Val Glu Arg Asp
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Cys Ala Thr Ile Thr Lys Asn Thr Val Gln Phe Leu Lys Met Lys Lys
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Gly Cys Ala Phe Thr Tyr Asp Leu Thr Ile Ser Asn Leu Thr Arg Leu
 2820 2825 2830

Ile Glu Leu Val His Arg Asn Asn Leu Glu Glu Lys Glu Ile Pro Thr 2835	2840	2845
Ala Thr Val Thr Thr Trp Leu Ala Tyr Thr Phe Val Asn Glu Asp Val 2850	2855	2860
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Pro Val Leu Glu Lys Val Glu Pro Asp Ala Ser Asp Asn Gln Asn Ser 2915	2920	2925
Val Lys Ile Gly Leu Asp Glu Gly Asn Tyr Pro Gly Pro Gly Ile Gln 2930	2935	2940
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Ile Met Ile Leu Gly Ser Arg Asn Ser Ile Ser Asn Arg Ala Lys Thr 2965	2970	2975
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Asp Pro Glu Leu Ser Glu Met Val Asp Phe Lys Gly Thr Phe Leu Asp 3010	3015	3020
Arg Glu Ala Leu Glu Ala Leu Ser Leu Gly Gln Pro Lys Pro Lys Gln 3025	3030	3035 3040
Val Thr Lys Glu Ala Val Arg Asn Leu Ile Glu Gln Lys Lys Asp Val 3045	3050	3055
Glu Ile Pro Asn Trp Phe Ala Ser Asp Asp Pro Val Phe Leu Glu Val 3060	3065	3070
Ala Leu Lys Asn Asp Lys Tyr Tyr Leu Val Gly Asp Val Gly Glu Val 3075	3080	3085

Lys Asp Gln Ala Lys Ala Leu Gly Ala Thr Asp Gln Thr Arg Ile Ile
 3090 3095 3100

Lys Glu Val Gly Ser Arg Thr Tyr Ala Met Lys Leu Ser Ser Trp Phe
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Gly Val His Leu Gly Thr Ile Pro Ala Arg Arg Val Lys Ile His Pro
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Tyr Glu Ala Tyr Leu Lys Leu Lys Asp Phe Ile Glu Glu Glu Glu Lys
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Leu Lys Lys Ile Arg Phe Gln Gly Asn Leu Asn Thr Lys Lys Met Leu
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Trp His Lys Phe Ile Asp Thr Ile Thr Asp His Met Thr Glu Val Pro
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			20						25				30		

Gly	Val	Tyr	Leu	Leu	Pro	Arg	Arg	Gly	Pro	Arg	Leu	Gly	Val	Arg	Ala
		35						40					45		

Thr	Arg	Lys	Thr	Ser	Glu	Arg	Ser	Gln	Pro	Arg	Gly	Arg	Arg	Gln	Pro
		50					55					60			

Ile	Pro	Lys	Asp	Arg	Arg	Ser	Thr	Gly	Lys	Ser	Trp	Gly	Lys	Pro	Gly
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Tyr	Pro	Trp	Pro	Leu	Tyr	Gly	Asn	Glu	Gly	Leu	Gly	Trp	Ala	Gly	Trp
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Leu Leu Ser Pro Arg Gly Ser Arg Pro Ser Trp Gly Pro Asn Asp Pro
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Arg His Arg Ser Arg Asn Val Gly Lys Val Ile Asp Thr Leu Thr Cys
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Gly Phe Ala Asp Leu Met Gly Tyr Ile Pro Val Val Gly Ala Pro Leu
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Gly Gly Val Ala Arg Ala Leu Ala His Gly Val Arg Val Leu Glu Asp
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Gly Val Asn Phe Ala Thr Gly Asn Leu Pro Gly Cys Ser Phe Ser Ile
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Phe Leu Leu Ala Leu Leu Ser Cys Ile Thr Thr Pro Val Ser Ala Ala
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Glu Val Lys Asn Ile Ser Thr Gly Tyr Met Val Thr Asn Asp Cys Thr
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Asn Asp Ser Ile Thr Trp Gln Leu Gln Ala Ala Val Leu His Val Pro
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Gly Cys Val Pro Cys Glu Lys Val Gly Asn Ala Ser Gln Cys Trp Ile
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Leu His Thr Gly Phe Ile Ala Ser Leu Phe Tyr Thr His Ser Phe Asn
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Val Ala Ile Phe Tyr Pro Gly Val Val Phe Asp Ile Thr Lys Trp Leu
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Thr Leu Gly Phe Gly Ala Tyr Leu Ser Lys Ala His Gly Ile Asn Pro	1265	1270	1275
Asn Ile Arg Thr Gly Val Arg Thr Val Thr Thr Gly Ala Pro Ile Thr	1285	1290	1295
Tyr Ser Thr Tyr Gly Lys Phe Leu Ala Asp Gly Gly Cys Ala Gly Gly	1300	1305	1310
Ala Tyr Asp Ile Ile Ile Cys Asp Glu Cys His Ala Val Asp Ser Thr	1315	1320	1325
Thr Ile Leu Gly Ile Gly Thr Val Leu Asp Gln Ala Glu Thr Ala Gly	1330	1335	1340
Val Arg Leu Thr Val Leu Ala Thr Ala Thr Pro Pro Gly Ser Val Thr	1345	1350	1355
Thr Pro His Pro Asn Ile Glu Glu Val Ala Leu Gly Gln Glu Gly Glu	1365	1370	1375

Ile Pro Phe Tyr Gly Arg Ala Ile Pro Leu Ser Tyr Ile Lys Gly Gly
1380 1385 1390

Arg His Leu Ile Phe Cys His Ser Lys Lys Lys Cys Asp Glu Leu Ala
1395 1400 1405

Ala Ala Leu Arg Gly Met Gly Leu Asn Ser Val Ala Tyr Tyr Arg Gly
1410 1415 1420

Leu Asp Val Ser Val Ile Pro Thr Gln Gly Asp Val Val Val Val Ala
1425 1430 1435 1440

Thr Asp Ala Leu Met Thr Gly Tyr Thr Gly Asp Phe Asp Ser Val Ile
1445 1450 1455

Asp Cys Asn Val Ala Val Thr Gln Val Val Asp Phe Ser Leu Asp Pro
1460 1465 1470

Thr Phe Thr Ile Thr Thr Gln Ile Val Pro Gln Asp Ala Val Ser Arg
1475 1480 1485

Ser Gln Arg Arg Gly Arg Thr Gly Arg Gly Arg Leu Gly Ile Tyr Arg
1490 1495 1500

Tyr Val Ser Thr Gly Glu Arg Ala Ser Gly Met Phe Asp Ser Val Val
1505 1510 1515 1520

Leu Cys Glu Cys Tyr Asp Ala Gly Ala Ala Trp Tyr Glu Leu Thr Pro
1525 1530 1535

Ser Glu Thr Thr Val Arg Leu Arg Ala Tyr Phe Asn Thr Pro Gly Leu
1540 1545 1550

Pro Val Cys Gln Asp His Leu Glu Phe Trp Glu Ala Val Phe Thr Gly
1555 1560 1565

Leu Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly
1570 1575 1580

Glu Asn Phe Ala Tyr Leu Thr Ala Tyr Gln Ala Thr Val Cys Ala Arg
1585 1590 1595 1600

Ala Lys Ala Pro Pro Pro Ser Trp Asp Val Met Trp Lys Cys Leu Thr
1605 1610 1615

Arg Leu Lys Pro Thr Leu Val Gly Pro Thr Pro Leu Leu Tyr Arg Leu
1620 1625 1630

Gly Ser Val Thr Asn Glu Val Thr Leu Thr His Pro Val Thr Lys Tyr			
1635	1640	1645	
Ile Ala Thr Cys Met Gln Ala Asp Leu Glu Val Met Thr Ser Thr Trp			
1650	1655	1660	
Val Leu Ala Gly Gly Val Leu Ala Ala Val Ala Ala Tyr Cys Leu Ala			
1665	1670	1675	1680
Thr Gly Cys Val Cys Ile Ile Gly Arg Leu His Ile Asn Gln Arg Ala			
1685	1690	1695	
Val Val Ala Pro Asp Lys Glu Val Leu Tyr Glu Ala Phe Asp Glu Met			
1700	1705	1710	
Glu Glu Cys Ala Ser Arg Ala Ala Leu Ile Glu Glu Gly Gln Arg Ile			
1715	1720	1725	
Ala Glu Met Leu Lys Ser Lys Ile Gln Gly Leu Leu Gln Gln Ala Ser			
1730	1735	1740	
Lys Gln Ala Gln Asp Ile Gln Pro Thr Val Gln Ala Ser Trp Pro Lys			
1745	1750	1755	1760
Val Glu Gln Phe Trp Ala Lys His Met Trp Asn Phe Ile Ser Gly Ile			
1765	1770	1775	
Gln Tyr Leu Ala Gly Leu Ser Thr Leu Pro Gly Asn Pro Ala Val Ala			
1780	1785	1790	
Ser Met Met Ala Phe Ser Ala Ala Leu Thr Ser Pro Leu Ser Thr Ser			
1795	1800	1805	
Thr Thr Ile Leu Leu Asn Ile Leu Gly Gly Trp Leu Ala Ser Gln Ile			
1810	1815	1820	
Ala Pro Pro Ala Gly Ala Thr Gly Phe Val Val Ser Gly Leu Val Gly			
1825	1830	1835	1840
Ala Ala Val Gly Ser Ile Gly Leu Gly Lys Val Leu Val Asp Ile Leu			
1845	1850	1855	
Ala Gly Tyr Gly Ala Gly Ile Ser Gly Ala Leu Val Ala Phe Lys Ile			
1860	1865	1870	
Met Ser Gly Glu Lys Pro Ser Met Glu Asp Val Val Asn Leu Leu Pro			
1875	1880	1885	

Gly Ile Leu Ser Pro Gly Ala Leu Val Val Gly Val Ile Cys Ala Ala
 1890 1895 1900

Ile Leu Arg Arg His Val Gly Pro Gly Glu Gly Ala Val Gln Trp Met
 1905 1910 1915 1920

Asn Arg Leu Ile Ala Phe Ala Ser Arg Gly Asn His Val Ala Pro Thr
 1925 1930 1935

His Tyr Val Thr Glu Ser Asp Ala Ser Gln Arg Val Thr Gln Leu Leu
 1940 1945 1950

Gly Ser Leu Thr Ile Thr Ser Leu Leu Arg Arg Leu His Asn Trp Ile
 1955 1960 1965

Thr Glu Asp Cys Pro Ile Pro Cys Gly Gly Ser Trp Leu Arg Asp Val
 1970 1975 1980

Trp Asp Trp Val Cys Thr Ile Leu Thr Asp Phe Lys Asn Trp Leu Thr
 1985 1990 1995 2000

Ser Lys Leu Phe Pro Lys Met Pro Gly Leu Pro Phe Val Ser Cys Gln
 2005 2010 2015

Lys Gly Tyr Lys Gly Val Trp Ala Gly Thr Gly Ile Met Thr Thr Arg
 2020 2025 2030

Cys Pro Cys Gly Ala Asn Ile Ser Gly Asn Val Arg Leu Gly Ser Met
 2035 2040 2045

Arg Ile Thr Gly Pro Lys Thr Cys Met Asn Ile Trp Gln Gly Thr Phe
 2050 2055 2060

Pro Ile Asn Cys Tyr Thr Glu Gly Gln Cys Val Pro Lys Pro Ala Pro
 2065 2070 2075 2080

Asn Phe Lys Val Ala Ile Trp Arg Val Ala Ala Ser Glu Tyr Ala Glu
 2085 2090 2095

Val Thr Gln His Gly Ser Tyr His Tyr Ile Thr Gly Leu Thr Thr Asp
 2100 2105 2110

Asn Leu Lys Val Pro Cys Gln Leu Pro Ser Pro Glu Phe Phe Ser Trp
 2115 2120 2125

Val Asp Gly Val Gln Ile His Arg Phe Ala Pro Thr Pro Lys Pro Phe
 2130 2135 2140

Phe Arg Asp Glu Val Ser Phe Cys Val Gly Leu Asn Ser Phe Val Val
 2145 2150 2155 2160

Gly Ser Gln Leu Pro Cys Asp Pro Glu Pro Asp Thr Asp Val Leu Met
 2165 2170 2175

Ser Met Leu Thr Asp Pro Ser His Ile Thr Ala Glu Thr Ala Ala Arg
 2180 2185 2190

Arg Leu Ala Arg Gly Ser Pro Pro Ser Glu Ala Ser Ser Ala Ser
 2195 2200 2205

Gln Leu Ser Ala Pro Ser Leu Arg Ala Thr Cys Thr Thr His Gly Lys
 2210 2215 2220

Ala Tyr Asp Val Asp Met Val Asp Ala Asn Leu Phe Met Gly Gly Asp
 2225 2230 2235 2240

Val Thr Arg Ile Glu Ser Gly Ser Lys Val Val Val Leu Asp Ser Leu
 2245 2250 2255

Asp Pro Met Val Glu Glu Arg Ser Asp Leu Glu Pro Ser Ile Pro Ser
 2260 2265 2270

Glu Tyr Met Leu Pro Lys Lys Arg Phe Pro Pro Ala Leu Pro Ala Trp
 2275 2280 2285

Ala Arg Pro Asp Tyr Asn Pro Pro Leu Val Glu Ser Trp Lys Arg Pro
 2290 2295 2300

Asp Tyr Gln Pro Ala Thr Val Ala Gly Cys Ala Leu Pro Pro Pro Arg
 2305 2310 2315 2320

Lys Thr Pro Thr Pro Pro Pro Arg Arg Arg Arg Thr Val Gly Leu Ser
 2325 2330 2335

Glu Asp Ser Ile Gly Asp Ala Leu Gln Gln Leu Ala Ile Lys Ser Phe
 2340 2345 2350

Gly Gln Pro Pro Pro Ser Gly Asp Ser Gly Leu Ser Thr Gly Ala Gly
 2355 2360 2365

Ala Ala Asp Ser Gly Ser Gln Thr Pro Pro Asp Glu Leu Ala Leu Ser
 2370 2375 2380

Glu Thr Gly Ser Ile Ser Ser Met Pro Pro Leu Glu Gly Glu Leu Gly
 2385 2390 2395 2400

Asp Pro Asp Leu Glu Pro Glu Gln Val Glu Pro Gln Pro Pro Pro Gln			
2405	2410	2415	
Gly Gly Val Ala Ala Pro Gly Ser Asp Ser Gly Ser Trp Ser Thr Cys			
2420	2425	2430	
Ser Glu Glu Asp Asp Ser Val Val Cys Cys Ser Met Ser Tyr Ser Trp			
2435	2440	2445	
Thr Gly Ala Leu Ile Thr Pro Cys Ser Pro Glu Glu Glu Lys Leu Pro			
2450	2455	2460	
Ile Asn Pro Leu Ser Asn Ser Leu Leu Arg Tyr His Asn Lys Val Tyr			
2465	2470	2475	2480
Cys Thr Thr Thr Lys Ser Ala Ser Leu Arg Ala Lys Lys Val Thr Phe			
2485	2490	2495	
Asp Arg Met Gln Val Leu Asp Ser Tyr Tyr Asp Ser Val Leu Lys Asp			
2500	2505	2510	
Ile Lys Leu Ala Ala Ser Lys Val Thr Ala Arg Leu Leu Thr Met Glu			
2515	2520	2525	
Glu Ala Cys Gln Leu Thr Pro Pro His Ser Ala Arg Ser Lys Tyr Gly			
2530	2535	2540	
Phe Gly Ala Lys Glu Val Arg Ser Leu Ser Gly Arg Ala Val Asn His			
2545	2550	2555	2560
Ile Lys Ser Val Trp Lys Asp Leu Leu Glu Asp Ser Glu Thr Pro Ile			
2565	2570	2575	
Pro Thr Thr Ile Met Ala Lys Asn Glu Val Phe Cys Val Asp Pro Thr			
2580	2585	2590	
Lys Gly Gly Lys Lys Ala Ala Arg Leu Ile Val Tyr Pro Asp Leu Gly			
2595	2600	2605	
Val Arg Val Cys Glu Lys Met Ala Leu Tyr Asp Ile Thr Gln Lys Leu			
2610	2615	2620	
Pro Gln Ala Val Met Gly Ala Ser Tyr Gly Phe Gln Tyr Ser Pro Ala			
2625	2630	2635	2640
Gln Arg Val Glu Phe Leu Leu Lys Ala Trp Ala Glu Lys Lys Asp Pro			
2645	2650	2655	

Met Gly Phe Ser Tyr Asp Thr Arg Cys Phe Asp Ser Thr Val Thr Glu			
2660	2665	2670	
Arg Asp Ile Arg Thr Glu Glu Ser Ile Tyr Arg Ala Cys Ser Leu Pro			
2675	2680	2685	
Glu Glu Ala His Thr Ala Ile His Ser Leu Thr Glu Arg Leu Tyr Val			
2690	2695	2700	
Gly Gly Pro Met Phe Asn Ser Lys Gly Gln Thr Cys Gly Tyr Arg Arg			
2705	2710	2715	2720
Cys Arg Ala Ser Gly Val Leu Thr Thr Ser Met Gly Asn Thr Ile Thr			
2725	2730	2735	
Cys Tyr Val Lys Ala Leu Ala Ala Cys Lys Ala Ala Gly Ile Ile Ala			
2740	2745	2750	
Pro Thr Met Leu Val Cys Gly Asp Asp Leu Val Val Ile Ser Glu Ser			
2755	2760	2765	
Gln Gly Thr Glu Glu Asp Glu Arg Asn Leu Arg Ala Phe Thr Glu Ala			
2770	2775	2780	
Met Thr Arg Tyr Ser Ala Pro Pro Gly Asp Pro Pro Arg Pro Glu Tyr			
2785	2790	2795	2800
Asp Leu Glu Leu Ile Thr Ser Cys Ser Ser Asn Val Ser Val Ala Leu			
2805	2810	2815	
Gly Pro Gln Gly Arg Arg Arg Tyr Tyr Leu Thr Arg Asp Pro Thr Thr			
2820	2825	2830	
Pro Ile Ala Arg Ala Ala Trp Glu Thr Val Arg His Ser Pro Val Asn			
2835	2840	2845	
Ser Trp Leu Gly Asn Ile Ile Gln Tyr Ala Pro Thr Ile Trp Ala Arg			
2850	2855	2860	
Met Val Leu Met Thr His Phe Phe Ser Ile Leu Met Ala Gln Asp Thr			
2865	2870	2875	2880
Leu Asp Gln Asn Leu Asn Phe Glu Met Tyr Gly Ala Val Tyr Ser Val			
2885	2890	2895	
Ser Pro Leu Asp Leu Pro Ala Ile Ile Glu Arg Leu His Gly Leu Asp			
2900	2905	2910	

Ala Phe Ser Leu His Thr Tyr Thr Pro His Glu Leu Thr Arg Val Ala

2915

2920

2925

Ser Ala Leu Arg Lys Leu Gly Ala Pro Pro Leu Arg Ala Trp Lys Ser

2930

2935

2940

Arg Ala Arg Ala Val Arg Ala Ser Leu Ile Ser Arg Gly Gly Arg Ala

2945

2950

2955

2960

Ala Val Cys Gly Arg Tyr Leu Phe Asn Trp Ala Val Lys Thr Lys Leu

2965

2970

2975

Lys Leu Thr Pro Leu Pro Glu Ala Arg Leu Leu Asp Leu Ser Ser Trp

2980

2985

2990

Phe Thr Val Gly Ala Gly Gly Gly Asp Ile Tyr His Ser Val Ser Arg

2995

3000

3005

Ala Arg Pro Arg Leu Leu Leu Phe Gly Leu Leu Leu Leu Phe Val Gly

3010

3015

3020

Val Gly Leu Phe Leu Leu Pro Ala Arg

3025

3030